Cumulus clouds, cold pools, and the Lagrangian perspective

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Date:	**Wednesday, September 19, 2018**
Refreshments:	**3:00pm at MSB lanai**
	Free Cookies, Coffee & Tea Provided
	(Please Bring Your Own Cup)
Seminar Time:	**3:30pm**
Location:	**Marine Sciences Building, MSB 100**

Abstract:

Cumulus clouds are systems of considerable importance. They are key components of large-scale systems, such as the Inter-Tropical Convergence Zone or the Walker Circulation, which play a significant role in the Earth's climate; also, certain forms of deep convection are known to produce severe weather that can pose considerable threat to human life. In spite of its relevance, there are still many aspects of cumulus convection that remain to be fully understood. In this talk, I will focus on one such aspect, an example of gravity currents known as *cold pools*. These convective features are generated by evaporatively-cooled downdraft air which, after having sunk to the surface, expands out radially. After discussing the importance of cold pools in deep convective dynamics, I will illustrate how a Lagrangian perspective can efficiently be used to shed light on many aspects characterizing these objects. In particular, I will show how Lagrangian particles in a numerical model can help identify and track cold pools in a simulated precipitating system. Using this tracking method, I will then present results regarding key properties of the downdrafts generating cold pools, the origin of the moisture anomalies often observed around propagating cold pools, and the mechanisms through which cold pools can trigger new convective cells. Finally, I will present some recent results regarding cold pool collisions and how these impact the life cycle of cold pools themselves.